

**Petition for an Adjustment to the Shared Fixed Cardiac Catheterization
Equipment Need Determination for Lee County**

August 2, 2010

DFS Health Planning
RECEIVED

From: Doug Doris, Chief Executive Officer
Central Carolina Hospital
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AUG 02 2010

Medical Facilities
PLANNING SECTION

To: State Health Coordinating Council and Medical Facilities Planning Section
Division of Division of Health Service Regulation
2714 Mail Service Center
Raleigh, North Carolina 27699-2714

Re: PETITION: Central Carolina Hospital requests an adjustment in the Shared Fixed Cardiac Catheterization Equipment Need Determination for Lee County as set forth on page 188 in the *Proposed 2011 State Medical Facilities Plan (SMFP)* to identify a need for one unit of shared fixed cardiac catheterization equipment in Lee County.

I. Name, Address, Email Address, and Phone Number of Petitioner:

Central Carolina Hospital
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Sanford, NC 27330
Attn: Doug Doris, CEO
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doug.doris@tenethealth.com

II. Statement of the Proposed Need Adjustment

Central Carolina Hospital (CCH) requests that the State Health Coordinating Council (SHCC) approve an adjusted need determination for one unit of shared fixed cardiac catheterization equipment in Lee County, and for that need determination for one unit of shared fixed cardiac catheterization equipment to be reflected in the *2011 SMFP*. A table for Shared Fixed Cardiac Catheterization Equipment Need Determination should be included in the Cardiac Catheterization Section as follows.

Table 9xx: Shared Fixed Cardiac Catheterization Equipment Need Determination

Hospital Service System	Shared Fixed Cardiac Catheterization Equipment Need Determination	Certificate of Need Application Due Date	Certificate of Need Beginning of Review Date
Lee	1	February 15, 2011	March 1, 2011

III. Background Information Regarding Petitioner

CCH is a 137-bed acute care community hospital in Sanford, North Carolina. As the only hospital in rural Lee County, CCH is the county's primary provider of inpatient acute care, diagnostic and therapeutic services, and emergency services. CCH has provided diagnostic cardiac catheterization services through a contracted mobile unit since 1993. During that time, CCH has proven that it provides quality heart catheterization services and operates a safe program. CCH works within the guidelines set by The American College of Cardiology Society for Cardiac Angiography and Interventions Clinical Expert Consensus Document on Cardiac Catheterization Laboratory Standards. Following those guidelines, CCH performs careful risk screening and maintains transfer agreements with FirstHealth Moore Regional, UNC Hospitals, and Duke University Hospital for patients who require open heart surgery.

IV. Reasons for the Proposed Adjustment

Cardiac Catheterization Equipment Need Determination Methodology

There are two standard methodologies used to determine need for additional fixed cardiac catheterization equipment and shared fixed cardiac catheterization equipment. Methodology 1 is applicable to service areas that have fixed cardiac catheterization equipment. Methodology 2 is applicable to service areas that do not have fixed cardiac catheterization equipment. Methodology 2 is applicable to Lee County, which has no fixed cardiac catheterization equipment.

Page 188 of the *Proposed 2011 Plan* reads as follows:

Methodology 2:

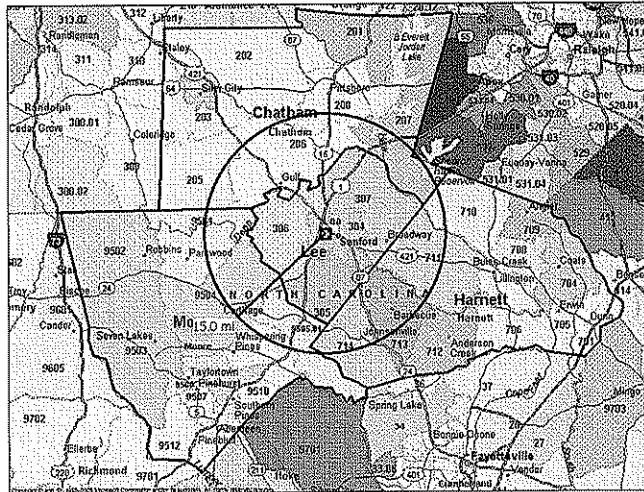
For cardiac catheterization equipment service areas in which a unit of fixed cardiac catheterization equipment is not located, need exists for one shared fixed cardiac catheterization equipment (i.e. fixed equipment that is used to perform both cardiac catheterization procedures and angiography procedures) when:

- a. The number of cardiac catheterization procedures as defined in 10A NCAC 14C .1601(5) performed at any mobile site in the cardiac catheterization equipment service area exceeds 240 (300 procedures X 80 percent) procedures per year for each eight hours per week the mobile equipment is operated at that site during the 12-month period reflected in the 2010 Hospital License Renewal Application or the 2010 Registration and Inventory of Cardiac Catheterization Equipment on file with the North Carolina Division of Health Service Regulation; and
- b. No other fixed or mobile cardiac catheterization service is provided within the same cardiac catheterization equipment service area.

CCH Four-County Service Area for Inpatient Services

CCH has a four-county service area for inpatient services (CCH Service Area), which includes Lee County and parts of Harnett, Chatham, and Moore Counties, as shown in the following map.

Central Carolina Hospital Census Tract Service Area



The population of the CCH Service Area is approaching 90,000 persons. In addition to the census tracts in Lee County, census tracts within a 15 mile radius, located in Chatham, Moore, and Harnett Counties with main highway connectors to Lee County and Sanford, are included in the CCH Service Area as reflected in the following table. Lee County residents represent 80% of all inpatient admissions at CCH.

CCH Service Area Population - Census Tract			
County	Census Tract	2007	2009
Primary Service Area			
Lee	All	56,330	58,574
Secondary Service Area			
Chatham	206	5,081	5,356
Chatham	205	3,852	4,060
Moore	9505.01	6,473	6,680
Harnett	711	14,096	14,967
Total		85,832	89,638

Source: CCH 2010 LRA

Cardiac resources in the CCH Service Area are limited. In surrounding counties, FirstHealth Moore Regional in Pinehurst provides extensive cardiac services, and is one of the referral centers for the CCH Service Area. There are no cardiac catheterization services in Harnett and Chatham Counties. Many of the residents of western Harnett County, southern Chatham County, and eastern Moore County are physically closer to CCH and look to CCH for health care services. Nearly 20% of all admissions at CCH in FY 2009 were from Harnett, Chatham, and Moore Counties. Patient origin for outpatient diagnostic cardiac catheterizations performed on the CCH mobile cardiac catheterization lab in FY 2009 is reflected in the following table.

CCH Outpatient Diagnostic Cardiac Catheterization Patient Origin - 2009	
Lee	76.2%
Harnett	21.3%
Chatham	2.5%

Source: Thomson Reuters NC Hospital Outpatient Database

As shown in the previous table, residents of Lee County represented over 75% of total outpatient diagnostic cardiac catheterizations performed at CCH in 2009. The remaining volume was from Harnett and Chatham Counties.

In 2008, per capita income and median household income for Lee County residents were below the state average.¹ In addition, the unemployment rate in Lee County was greater than the State average. Data released from the North Carolina Employment Security Commission shows Lee County unemployment at 12.3% as of May 2010. The statewide unemployment was 9.9%.

Requiring travel outside the CCH Service Area automatically deters a substantial proportion of the residents from follow up on treatment or diagnostic recommendations. That is true regardless of their insurance status. Those decisions involve more than the cost of care itself. Reasons for deferral involve the perception of distance from home, fear of travel on the interstate and urban beltways, and distance from family and support networks.

Historical Cardiac Catheterization Utilization at Central Carolina Hospital

CCH has four full-time invasive cardiologists on its medical staff, the fourth cardiologist, a physician from Duke, will begin full-time practice at CCH in August 2010. In addition, Duke also intends to rotate three additional cardiologists resulting in the equivalent of another full-time cardiologist to practice at CCH.

CCH provides cardiac catheterization procedures on mobile equipment provided by FirstHealth Moore Regional. CCH is the only cardiac catheterization provider in Lee County. On the two half days per week the mobile unit averages four hours per day.

In FY 2009 (October 2008 – September 2009), , CCH provided a total of 122 mobile cardiac catheterization procedures² in the eight hours per week (four hours per day, two days per week) that the mobile cardiac catheterization lab is present at CCH.

Based upon Methodology 2, CCH must provide 240 cardiac catheterization procedures on the mobile equipment to project a need for a shared fixed cardiac catheterization equipment in the *Proposed 2011 SMFP*. CCH had not reached the threshold by September 30, 2009. CCH, however, exceeded that 240 procedure threshold in the twelve month timeframe ending July 2010 and was extremely close to the threshold for the three previous twelve month periods as shown in the following table.

¹ www.census.org; American finder

² Diagnostic cardiac catheterizations as defined by ICD-9 codes 3721, 3722, 3723

Historical Cardiac Catheterization Utilization											
October 2008 - July 2010											
	10/08 - 9/09	11/08 - 10/09	12/08 - 11/09	1/09 - 12/09	2/09 - 1/10	3/09 - 2/10	4/09 - 3/10	5/09 - 4/10	6/09 - 5/10	7/09 - 6/10	8/09 - 7/10
Running Twelve Month Total	148	165	177	185	202	211	216	238	238	236	253

Source: CCH Internal Data; Attachment 1

As shown in the previous table, in the twelve month timeframe beginning in May 2009, CCH has nearly exceeded the 240 cardiac catheterization procedures required to determine a need for a shared fixed cardiac catheterization lab in Lee County. CCH exceeded the threshold in the most recent twelve month timeframe, August 2009 through July 2010. Furthermore, available cardiac catheterization hours at CCH from August 2009 through July 2010 were utilized at 84% of capacity³. There is a current immediate need for shared fixed cardiac catheterization equipment in Lee County.

Historical Cardiac Catheterization Growth Rate											
October 2008 - July 2010											
	10/08 - 9/09	11/08 - 10/09	12/08 - 11/09	1/09 - 12/09	2/09 - 1/10	3/09 - 2/10	4/09 - 3/10	5/09 - 4/10	6/09 - 5/10	7/09 - 6/10	8/09 - 7/10
Running Twelve Month Total	148	165	177	185	202	211	216	238	238	236	253
Monthly Growth Rate		11.5%	7.3%	4.5%	9.2%	4.5%	2.4%	10.2%	0.0%	-0.8%	7.2%
Average Monthly Growth Rate for Last 10 Months											5.6%

Source: CCH Internal Data; Attachment 1

As shown in the previous table, cardiac catheterizations at CCH increased at an average annual monthly growth rate of 5.6% since October 2008. Assuming the capacity of the mobile cardiac catheterization lab could support additional volume, and that volume grows at the historical monthly growth rate for the next two months, total CCH cardiac catheterization volume in FY 2010 will exceed the 240, as shown in the following table.

Central Carolina Hospital - Monthly Cardiac Catheterization Procedures - Projected September 09-August 10 and October 2009 through September 2010 (FY 2010)			
	8/09 - 7/10	9/09 - 8/10	10/09 - 9/10
Running Twelve Month Total	253	267	282
Average Monthly Growth Rate for Last 10 Months	5.6%		

Source: CCH Internal Data; Attachment 1

As reflected in the previous table, projected cardiac catheterization volume for FY 2010 will exceed the threshold required to identify a need for shared fixed equipment in Lee County. Residents of the CCH Service Area should not have to wait another full year for a need

³ Calculation = 253 procedures / 300 (capacity for 8 hour timeframe as defined on page 188 of the Proposed 2011 SMFP) = 84.3%

determination, and then perhaps another year for the CON process to finalize for shared fixed cardiac catheterization equipment.

The cardiac catheterization service at CCH is not available five days a week. As a result, many CCH patients are referred elsewhere as time is critical for optimal patient care. CCH physicians and the CCH emergency department refer a significant volume of cardiac catheterization patients to Moore Regional Hospital, UNC Hospitals, and Duke University Hospital due to unavailability of mobile service. In FY 2009, 85% of outpatient cardiac catheterizations were completed outside of Lee County. Many of these patients could have been appropriately treated at CCH if fixed cardiac catheterization services had been available. In addition, many patients of CCH in need of a cardiac catheterization procedure at times when the mobile equipment is unavailable refuse to make a trip to Pinehurst, Chapel Hill or Durham despite the exceptional quality available at those hospitals. For patients, travel and cost are significant barriers to care. Shared fixed cardiac catheterization services need to be available to CCH patients on a full-time basis.

Background Information Regarding Cardiovascular Disease

Cardiovascular Disease and Coronary Artery Disease

Cardiovascular disease (CVD), including heart disease and stroke, remains the leading cause of death in Lee County as in the United States despite improvements in prevention, detection, and treatment.⁴ CVD is no longer thought of as a disease that primarily affects men as they age. It is a killer of people in the prime of life, with more than half of all deaths occurring among women. Coronary artery disease affects more than 70 million Americans (one quarter of our population) with close to one million deaths per year in the United States. Over 6 million hospitalizations each year are due to cardiovascular disease. For every person who dies from a heart attack or angina, 18 people live with these conditions. For every person who dies from a stroke, seven people cope with the consequences of a non-fatal event. Many of these survivors are disabled and cannot lead productive lives. They also are at high risk for additional events. These numbers are increasing as the epidemic of heart disease and stroke continues.

The economic impact of cardiovascular disease on the U.S. health care system continues to grow as the population ages. The cost of heart disease and stroke in the United States is projected to be \$394 billion in 2005, including health care expenditures and lost productivity from death and disability.

Risk factors include advanced age, family history/genetic susceptibility, obesity, smoking, altered lipid metabolism including elevated LDL cholesterol and fatty acids in the blood, chronic diseases such as diabetes, high blood pressure and kidney failure. Current preventative measures include improved diet and nutritional status, exercise, smoking cessation, stress reduction, and medications such as statins, aspirin, and anti-hypertensive agents.

Coronary Angiography

Coronary angiography is currently the standard for diagnosing coronary artery disease and is the primary method used to help delineate coronary anatomy.⁵ In

⁴ Text excerpted from: <http://www.bocaradiology.com/Procedures/cardiac/index.htm>

⁵ Text excerpted from: <http://www.bocaradiology.com/Procedures/cardiac/index.htm>

addition to defining the site, severity, and morphology of lesions, coronary angiography helps provide a qualitative assessment of coronary blood flow and helps identify collateral vessels. Correlation of the coronary angiogram and left ventriculogram findings permits identification of potentially viable areas of the myocardium that may benefit from a revascularization procedure. Left ventricular function can be further evaluated during stress using atrial pacing, dynamic exercise, or pharmacologic agents. Also, valvular function with pressure measurements can be performed to quantify severity of disease.

The procedure involves passing a plastic catheter over a guide wire and selectively injecting x-ray contrast into the aorta (main artery coming out of the heart) and the coronary arteries, which supply oxygen to the heart. The major complication rate of this procedure including stroke, heart attack, infection, arterial injury, and death is approximately 1% at most centers. The radiation exposure for diagnostic imaging alone is approximately 3 to 6 mSv but can go above 30 mSv in prolonged interventional procedures. Relatively large doses of iodinated contrast may be used which can be toxic to the kidneys.

More than 4 million patients per year undergo invasive cardiac catheterization each year in the U.S. with more than 30% of these examinations being normal.⁶ Approximately one million undergo revascularization procedures including stenting and coronary artery bypass grafting.

Health Status and Heart Disease Death Statistics

According to the NC State Center for Health Statistics, CCH Service Area residents have death rates which are much higher than the State average. In 2008, the mortality rate for residents of Lee County was 224.3 deaths per 100,000 compared to the State's rate of 188.8 deaths per 100,000. The following table reflects mortality statistics for heart disease and for all causes for the CCH Service Area.

⁶ Text excerpted from: <http://www.bocaradiology.com/Procedures/cardiac/index.htm>

Mortality Rates			
	Heart Disease - 2004-2008	All Causes -2008	All Causes - Age Adjusted 2004-2008
Lee	220.8	224.3	219.7
Chatham	223	234.9	180.1
Harnett	183.5	165.1	227.8
Moore	256.7	233.3	156.4
North Carolina	196.8	188.8	202.2

Source: North Carolina State Center for Health Statistics

As reflected in the previous table, Lee County residents have higher death rates than the North Carolina average in all cases. According to the NC State Center for Health Statistics, heart disease was the leading cause of death in Lee County from 2004 to 2008. The following table reflects hospitalization rates by disease categories for the CCH Service Area.

Hospitalization Rates by Disease per 1000 Population By County - 2008			
	Cardiovascular and Circulatory Diseases	Cerebrovascular Disease	Heart Disease
Lee	18.1	3.1	16.3
Chatham	16.3	2.7	11.2
Harnett	18.8	3.2	13.3
Moore	23.4	4.0	16.2
North Carolina	17.6	3.0	11.8

Source: North Carolina State Center for Health Statistics

The hospital admission rate per 1,000 for residents of Lee County admitted with a principal diagnosis of heart disease of 16.3 admissions per 1,000 is well over the North Carolina average of 11.8 admissions per 1,000 as shown in the previous table.

As part of its community mission, CCH must strive to develop its cardiac care program. Its patients need and deserve a more fully developed cardiac care program close to home. Cardiac catheterization is a key element in a cardiac care program because it is the definitive tool for diagnosis and management of coronary artery disease.

Peripheral Vascular Disease

More than 12 million persons in the United States suffer from vascular disease. Approximately one million Americans develop symptoms of peripheral vascular disease (PVD) each year^{7,8}. The most common cause of peripheral artery disease is atherosclerosis, or buildup of plaque in the arterial walls. Many of these cases are complicated by cardiac disease, hypertension, diabetes, lipid disorders or kidney disease. Recent data suggests that peripheral vascular disease continues to be a prevalent yet under-diagnosed and under-treated condition.⁹

⁷ <http://northernkentuckyangiographyforperipheralvasculardisease.com/>

⁸ http://www.stphc.com/peripheral_vascular_angiography.aspx

⁹ Id.

Patients with PVD typically suffer from exercise induced pain the in calf, thigh or buttocks. More advanced cases may present with foot pain at rest, non-healing foot ulcers or wounds or gangrene.

Risk factors for developing PVD are:

- Smoking
- High Blood Pressure
- Diabetes
- High cholesterol
- Obesity
- Sedentary lifestyle
- Family history of vascular disease.

Peripheral vascular disease shares the same risk factors as coronary artery disease and the diseases often occur together.

Peripheral Angiography

A peripheral angiogram^{10, 11} is a test that uses dye and special X-rays to show the inside of arteries that supply blood to a patient's legs. A peripheral angiogram allows the interventional cardiologist to determine if narrowing or blockage exists, the location and to what extent.

Not unlike a coronary angiogram to view the coronary artery anatomy, a peripheral angiogram procedure involves threading a long, thin flexible tube (catheter) into the arteries of the leg. Dye is injected through the catheter and special X-rays are taken while the dye is flowing through the arteries. A patient is awake during the procedure. Mild sedation may be given.

Angiography via an arterial catheter is the gold standard in imaging of the arterial system of the lower limbs. It provides high resolution imaging of the entire lower limb vascular tree and allows percutaneous vascular intervention at the same sitting. Peripheral angiography has had tremendous success returning blood flow to the lower extremities for limb salvage and non-healing wound patients.

Cardiac Catheterization and Peripheral Angiography Utilization Rates

Diagnostic cardiac catheterization statewide has experienced a steady decrease for the past three years. Cardiac catheterization, nevertheless, remains the most effective tool for the diagnosis of coronary artery disease¹². The North Carolina diagnostic cardiac catheterization rate has been trending downwards towards 7.0 per 1,000. Lee County outpatient diagnostic cardiac catheterization rates have been greater than the State average for the last two years, as shown in the following table.

Lee County Residents - Total Outpatient Diagnostic Cardiac Catheterizations Per 1,000 FY 2008 and FY 2009
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¹⁰ Id.

¹¹ <http://bjr.birjournals.org/cgi/content/full/74/879/219>

¹² <http://www.bocaradiology.com/Procedures/cardiac/index.htm>

	2008	2009
Outpatient Diagnostic Cardiac Catheterizations per 1000 Population	8.8	10.6

Source: Thomson Reuters Outpatient Database

As shown in the previous table, utilization of outpatient diagnostic cardiac catheterization by Lee County residents in 2009 was considerably greater than the 7.0 diagnostic cardiac catheterization rate per 1,000 population for the State of North Carolina. In addition, the previous table shows that outpatient diagnostic cardiac catheterization by Lee County residents increased from 2008 to 2009. That growth may be a result of the higher incidence of cardiac disease in Lee County, as previously discussed, and the increased utilization of the mobile cardiac catheterization equipment at CCH. Prior to January 2008, CCH had a Duke mobile catheterization unit on site; however, only cardiologists credentialed by Duke could utilize that equipment.

In January 2008, the FirstHealth mobile catheterization unit replaced the Duke equipment allowing all cardiologists credentialed at CCH access to the equipment. As a result, in 2008, CCH performed 9% of all outpatient diagnostic cardiac catheterizations on Lee County residents. CCH market share increased to 17% of all outpatient diagnostic cardiac catheterizations on Lee County residents in 2009 as shown in Attachment 1.

The following table projects future inpatient and outpatient diagnostic cardiac catheterizations at CCH through 2016 based upon current market share.

Projected Diagnostic Cardiac Catheterization Volume Lee, Harnett and Chatham Counties					
	2012	2013	2014	2015	2016
Total Population – Lee, Harnett, Chatham Counties	249,808	255,160	260,496	265,840	271,175
Service Area 2009 Outpatient Diagnostic Cardiac Catheterization Use Rate per 1,000	6.2	6.2	6.2	6.2	6.2
Projected Outpt Dx Cardiac Cath – Lee, Harnett, Chatham Counties	1,545	1,578	1,611	1,644	1,677
CCH 2010 Market Share	17.1%	17.1%	17.1%	17.1%	17.1%
CCH Projected Outpatient Diagnostic Cardiac Catheterization Volume	264	270	276	281	287
CCH Inpatient Diagnostic Cardiac Catheterization Volume - 25% of Total ¹³	88	90	92	94	96
Total Projected CCH Diagnostic Cardiac Catheterization Volume	352	360	368	375	383

Source: Attachment 1

Note: CCH Service Area includes Lee County and parts of Harnett, Chatham, and Moore Counties; census tract cardiac catheterization data was not available for 2012-2016. As a result, CCH used three county population as a proxy.

A shared fixed laboratory means that cardiac catheterization is not the only procedure performed on the equipment. Peripheral angiography procedures represent the majority of other procedures done on shared fixed equipment. For both cardiac catheterization and peripheral angiography services, CCH needs to capture only a very small market share of the projected three county cardiac catheterization volume to be financially successful and to justify performance-wise a full time peripheral angiography service at CCH. The Duke cardiologists

¹³ Based upon historical data; Attachment 1

have expressed interest in providing peripheral angiography services at CCH. Additionally, CCH is involved in ongoing discussions with vascular surgeons capable of performing peripheral angiography services who have expressed interest in CCH.

The same disease/environmental factors that cause vascular disease in the periphery, cause it in the heart. Thus, patients who have vascular disease could be treated in their home service area with a team of competent professionals who would collaborate on their total care. Pharmaceutical regimen, often difficult for such patients, could be coordinated locally. Peripheral angiography would complement the projected cardiac catheterization volume to assure the shared fixed equipment is a cost effective alternative. The following table projects total peripheral angiography procedures for Lee, Harnett and Chatham Counties through 2016.

Projected Peripheral Angiography Volume Lee, Harnett and Chatham Counties					
	2012	2013	2014	2015	2016
Total Population – Lee, Harnett, Chatham Counties	249,808	255,160	260,496	265,840	271,175
Peripheral Angiography Incidence Rate per 1,000 Population ¹⁴	15.6	15.6	15.6	15.6	15.6
Projected Peripheral Angiography – Lee, Harnett, Chatham Counties	3,897	3,980	4,064	4,147	4,230
CCH Projected Market Share	15.0%	15.0%	15.0%	15.0%	15.0%
CCH Projected Peripheral Angiography Volume	585	597	610	622	635

Source: Attachment 1

Note: CCH Service Area includes Lee County and parts of Harnett, Chatham, and Moore Counties; census tract cardiac catheterization data was not available for 2012-2016. As a result, CCH used three county population as a proxy.

As shown in the previous table, there is sufficient volume cardiac catheterization and peripheral angiography equipment in these three counties to support the shared fixed cardiac catheterization equipment at CCH.

The addition of shared fixed cardiac catheterization services will improve access and decrease the time and costs associated with traveling to Pinehurst, Chapel Hill or Durham for those much-needed services.

¹⁴ Incidence rate based upon data included in 2007 Scotland Memorial Petition for Shared Fixed Cardiac Catheterization Equipment, from the Advisory Board

Benefits of Fixed Cardiac Catheterization Equipment at Central Carolina Hospital

Decrease Out-Migration for Cardiac Services and Improve Access to Cardiac Services in the CCH Service Area

Many residents of the CCH Service Area choose stay in Lee County for their health care whenever possible. For its full time services, CCH enjoys 49 percent market share of Lee County residents, even with the significant outmigration for cardiology inpatient care. That reflects both its positive reputation and, **more importantly**, the reliance and dependency the community has on CCH to meet its health care needs.

Most Lee County residents live 35 minutes to an hour away from the nearest fixed cardiac catheterization equipment. The nearest provider is in Pinehurst, approximately 35 minutes from CCH. Providers with fixed equipment in the Raleigh/Durham/Chapel Hill area are as much as an hour away from CCH.

Given the frequency of demand for cardiac procedures - it is unreasonable for residents of the CCH Service Area to travel for that critical diagnostic procedure. For many, the time involved means a delay of hours or more likely, days to get appropriate treatment. Time involved in stabilizing a patient; determining a diagnosis, arranging medical transport, coordinating care teams at the referral hospital adds up to critical time lost for each patient for whom timely cardiac catheterization is the best solution.

Physician Retention

CCH medical staff has over 100 active physicians in 20 specialties. CCH is actively recruiting additional primary care physicians and specialists. Recruiting and retaining qualified medical specialists is one of the most critical and difficult things a rural community hospital must accomplish to maintain its financial viability and to provide needed services to its community.

Having appropriate technology is a major component in successful recruiting efforts. CCH's medical staff includes four experienced full-time invasive cardiologists. All four are Board Certified. Based upon ongoing discussions with Duke, CCH anticipates the addition of an equivalent fifth full-time cardiologist in the next six months. The addition of a new cardiologist at CCH will positively impact the provision of cardiac catheterization insuring that the mobile equipment continues to be utilized over 240 procedures per year, further supporting the need for shared fixed cardiac catheterization equipment at CCH in Lee County.

The health status of the four-county population served by CCH demands that CCH retain qualified cardiology staff. Shared fixed cardiac catheterization equipment is critical to retaining the excellent cardiology staff as documented in the letters of support from CCH physicians in Attachment 2.

V. The Project Would Not Result in an Unnecessary Duplication of Services

As discussed above, CCH refers its cardiac care patients to FirstHealth Moore Regional, UNC Hospitals, and Duke University Hospital. FirstHealth Moore Regional performed over 3,500 diagnostic cardiac catheterizations in 2009. UNC Hospitals and Duke together did more than 5,000 diagnostic cardiac catheterizations.

As shown in the projections set forth above, sufficient volume will be generated in the future at CCH, holding market share constant, based only upon population growth, to assure that the additional number of cardiac catheterizations that will be done at CCH will not make a difference in the viability of the programs at FirstHealth Moore Regional, UNC Hospitals, and Duke. Assuming that CCH increases its market share due to improved diagnostic capacity, CCH's referrals to those specialty centers will likely increase. In fact, FirstHealth, CCH's mobile cardiac catheterization vendor, receives most of CCH's referrals for scheduling overflow and more specialized procedures.

CCH has discussed this Petition with representatives from FirstHealth Moore Regional and Duke.

VI. Statement of the Alternatives Considered

Maintain the Status Quo – Continue Mobile Services

FirstHealth Moore Regional provides CCH with quality equipment for which CCH is appreciative. Mobile service, however, is at best, an interim solution. Mobile service is inefficient, adds overhead, and is always at risk of a truck breakdown and/or damage to the equipment on the road. It can compromise patient privacy during transport to and from the mobile unit.

CCH's patients are treated in a space that is physically outside the hospital. Patients are exposed to the elements while being transported between hospital and mobile unit. The service is not available every day; but patients get sick every day.

Any time that a service nears its capacity, scheduling becomes increasingly difficult. Patients become frustrated and cardiologists become frustrated and the result is more referrals out of system. Patient word of mouth is powerful. The more patients that must be referred to providers outside of the CCH Service Area, the more other patients choose to seek service out of the CCH Service Area. CCH can relieve capacity and scheduling constraints by adding another day. That, however, would result in a vicious cycle - ease scheduling for a period, utilization increases, almost reach the threshold for fixed service, then capacity/scheduling issues once again force referrals to providers out of the Service Area to the frustration of patients and cardiologists. Mobile service does not address accessibility for CCH's proven program.

The successful mobile cardiac catheterization experience at CCH and the demand for the service from cardiologists and primary care physicians demonstrate a need and illustrate that CCH can sustain the volume required by a shared fixed service.

For those reasons and for the reasons stated above, maintaining the status quo is not acceptable.

Performance of CT Angiography

Multi-slice (64) computed tomography is an effective tool for ruling out coronary artery disease. It is good for checking status of CABG repairs. It reduces the need for diagnostic cardiac catheterization by only five percent, and cannot replace cardiac catheterization as the standard for diagnosis. Its primary role is as a substitute for nuclear stress tests. CT Angiography also carries high radiation exposure risks. CCH has a 64-slice CT scanner. The cardiologists at CCH do not perform CT Angiography. As previously stated, CT Angiography is a complement to cardiac catheterization services for the diagnosis of coronary artery disease, not a replacement.

Development of a Shared Fixed Cardiac Catheterization Laboratory

A shared fixed cardiac catheterization lab will make cardiac services available all day, every day at CCH. It will allow CCH patients to remain close to home for crucial, timely cardiac care, possibly preventing disease progression. A shared fixed lab will allow CCH physicians to treat vascular disease throughout a patient's body, rather than limiting it to one part of the body.

V. Statement of the Adverse Effects on the Population

CCH has surpassed the planning threshold set forth in Methodology 2. If this Petition is not approved, and an adjusted need determination for one shared fixed cardiac catheterization equipment not included in the *Final 2011 SMFP*, patients from the CCH Service Area will suffer through additional years of waiting to avail themselves of the advantage of a locally available shared fixed cardiac catheterization service. A full-time shared fixed cardiac catheterization service at CCH will allow treatment of cardiac disease early with good results preventing the disease's progression to a later stage where patients require more drastic intervention.

CCH has demonstrated success with the services it offers. CCH has highly qualified, experienced physicians and staff in place to offer the service. Delaying CCH patients' access to full-time shared fixed cardiac catheterization service denies them access to quality cardiac care that can be provided successfully and more cost-effectively closer to home.

VIII. The Project is Consistent with the Three Basic Principles Governing the Development of the SMFP

This Petition is consistent with the provisions of the Basic Principles.

Residents of the CCH Service Area are forced to seek care outside of Lee County for most inpatient cardiac services and 85% of outpatient diagnostic cardiac catheterization services. The population of the CCH Service Area is large enough to support shared fixed cardiac catheterization equipment. Approval of this Petition will allow improved access to basic inpatient and outpatient services that should be provided at the local level.

The request in this Petition is not without precedent. In 2007, the SHCC approved two Petitions for Shared Fixed Cardiac Catheterization Equipment at Scotland Memorial Hospital and Halifax Memorial Hospital, respectively.

The cost of providing mobile cardiac catheterization is expensive for both the hospital and its patients. The development of shared fixed cardiac catheterization equipment in Lee County will allow the residents of the CCH Service Area to receive care locally in a lower cost community hospital.

CCH is submitting this Petition in order to expand access to inpatient and outpatient cardiac care, and to provide high quality care in a safe environment.

IX. Conclusion

CCH Service Area residents currently have very limited access to cardiac catheterization services. CCH has a mobile unit on site only two half days per week. At all other times, CCH Service Area residents are forced to leave home and incur added expense and time for cardiac catheterization services. CCH Service Area residents have a higher cardiac death rate and higher inpatient admissions for cardiac services than North Carolina residents as whole. Cardiac catheterization services should be available locally – in Lee County, specifically.

CCH has the cardiologists, physicians, and staff to support a fulltime shared fixed cardiac catheterization service. It has demonstrated that it can sustain the volume of cardiac catheterizations needed to support the service, and that other providers will not be adversely affected by that service. The CCH Service Area has more than enough demand to support a shared fixed cardiac catheterization service. Patients will benefit from the addition of a shared fixed cardiac catheterization laboratory in Lee County in the Final *2011 SMFP*.

Central Carolina Hospital - Monthly Cardiac Catheterization Procedures - October 2008 through July 2010																						
	8-Oct	8-Nov	8-Dec	9-Jan	9-Feb	9-Mar	9-Apr	9-May	9-Jun	9-Jul	9-Aug	9-Sep	9-Oct	9-Nov	9-Dec	10-Jan	10-Feb	10-Mar	10-Apr	10-May	10-Jun	10-Jul
IP Caths	3	4	2	3	5	4	1	6	3	0	0	6	6	3	4	7	8	7	5	6	4	7
OP Caths	1	6	6	2	6	20	13	14	21	5	8	9	15	19	12	15	12	22	31	14	18	15
Total	4	10	8	5	11	24	14	20	24	5	8	15	21	22	16	22	20	29	36	20	22	22
Running Twelve Month Total												148	165	177	185	202	211	216	238	238	236	253
Monthly Growth Rate													11.5%	7.3%	4.5%	9.2%	4.5%	2.4%	10.2%	0.0%	-0.8%	7.2%
Average Monthly Growth Rate for Last 10 Months																						5.6%

Source: CCH Internal Data
 Note: July total estimated based upon actual utilization through July 23rd

Central Carolina Hospital - Cardiac Catheterization Procedures - Projected September 09-August 10 and October 2009 through September 2010 (FFY 2010)			
Running Twelve Month Total	8/09-7/10	9/09-8/10	10/09-9/10
Average Monthly Growth Rate for Last 10 Months	253	267	282
	5.6%		

Source: CCH Internal Data
 Note: July total estimated based upon actual utilization through July 23rd

Central Carolina Hospital - Monthly Cardiac Catheterization Procedures - October 2008 through July 2010																							
	8-Oct	8-Nov	8-Dec	9-Jan	9-Feb	9-Mar	9-Apr	9-May	9-Jun	9-Jul	9-Aug	9-Sep	9-Oct	9-Nov	9-Dec	10-Jan	10-Feb	10-Mar	10-Apr	10-May	10-Jun	10-Jul	
IP Caths	3	4	2	3	5	4	1	6	3	0	0	6	6	3	4	7	8	7	5	6	4	7	
OP Caths	1	6	6	2	6	20	13	14	21	5	8	9	15	19	12	15	12	22	31	14	18	15	
Total	4	10	8	5	11	24	14	20	24	5	8	15	21	22	16	22	20	29	36	20	22	22	
Percent Inpt	75.0%	40.0%	25.0%	60.0%	45.5%	16.7%	7.1%	30.0%	12.5%	0.0%	0.0%	40.0%	28.6%	13.6%	25.0%	31.8%	40.0%	24.1%	13.9%	30.0%	18.2%	31.8%	

Source: CCH Internal Data

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Adult	49,086	53,819	56,636	59,498	64,002	65,744	67,710	72,883	74,128	76,136	77,161	79,641	68,829	64,659	67,542	64,161
		9.6%	5.2%	5.1%	7.6%	2.7%	3.0%	7.6%	1.7%	2.7%	1.3%	3.2%	-13.6%	-6.1%	4.5%	-5.0%
Mobile Adult	3,583	3,346	3,477	3,672	3,140	3,432	5,172	4,779	4,406	4,291	5,048	4,357	4,967	5,318	1,527	1,529
		-6.6%	3.9%	5.6%	-14.5%	9.3%	50.7%	-7.6%	-7.8%	-2.6%	17.6%	-13.7%	14.0%	7.1%	-71.3%	0.1%
Total	52,669	57,165	60,113	63,170	67,142	69,176	72,882	77,662	78,534	80,427	82,209	83,998	73,796	69,977	69,069	65,690
		8.5%	5.2%	5.1%	6.3%	3.0%	5.4%	6.6%	1.1%	2.4%	2.2%	2.2%	-12.1%	-5.2%	-1.3%	-4.9%
NC Population	7,185,097	7,342,026	7,497,863	7,653,854	7,807,095	7,948,901	8,079,712	8,203,734	8,316,847	8,416,671	8,531,487	8,669,657	8,867,193	9,064,307	9,247,173	9,382,610
Use Rate	7.33	7.79	8.02	8.25	8.60	8.70	9.02	9.47	9.44	9.56	9.64	9.69	8.32	7.72	7.47	7.00

Source: Annual SMFP and NC OSBM

INPATIENT HOSPITAL UTILIZATION AND CHARGES BY PRINCIPAL DIAGNOSIS, AND COUNTY OF RESIDENCE, NORTH CAROLINA, 2008 (EXCLUDING NEWBORNS & DISCHARGES FROM OUT OF STATE HOSPITALS)								
CARDIOVASCULAR & CIRCULATORY DISEASES	Cases - County Residents	Rate per 1000 population	Cerebrovascular Disease	Cases - County Residents	Rate per 1000 population	Heart Disease	Cases - County Residents	Rate per 1000 population
MARTIN	1,877	36.2	MARTIN	169	7.1	HALIFAX	1,445	26.2
LENOIR	2,058	35.8	LENOIR	377	6.6	EDGEcombe	1,341	25.9
anson	1,960	35.5	anson	158	6.2	LENOIR	1,404	24.4
JONES	1,546	33.0	JONES	59	5.7	RICHMOND	1,101	23.5
HALIFAX	765	32.0	EDGEcombe	274	5.3	NORTHAMPTON	489	23.1
EDGEcombe	323	31.4	HALIFAX	290	5.3	NASH	1,890	20.1
VANCE	657	31.0	VANCE	209	4.8	MARTIN	478	20.0
RICHMOND	740	29.2	CrAVEN	451	4.6	JONES	203	19.7
CrAVEN	2,638	28.1	RICHMOND	216	4.6	CARTERET	1,239	19.5
SCOTLAND	1,034	27.9	HyDE	25	4.5	allegHany	212	19.1
HyDE	3,623	27.8	SCOTLAND	165	4.5	SCOTLAND	706	19.0
PAMLICO	1,685	26.5	PAMLICO	57	4.4	ROBESON	2,469	18.9
HERTFORD	1,896	25.8	bertie	87	4.3	WASHINGTON	245	18.6
bertie	2,051	25.6	HERTFORD	102	4.3	SURRY	1,309	17.8
SURRY	282	25.3	NASH	397	4.2	CALDWELL	1,398	17.5
NASH	2,391	24.5	SURRY	309	4.2	SWAIN	239	17.1
ROBESON	341	24.4	CARTERET	260	4.1	SAMPSON	1,105	16.9
STANLY	322	24.4	COLUMBUS	223	4.1	anson	424	16.7
NORTHAMPTON	313	24.3	NORTHAMPTON	86	4.1	WILSON	1,320	16.7
COLUMBUS	1,306	23.9	ROBESON	531	4.1	bladen	533	16.6
CARTERET	1,036	23.8	STANLY	247	4.1	LEE	935	16.3
WILKES	1,548	23.7	Alamance	591	4.0	WAYNE	1,891	16.3
WARREN	474	23.6	MOORE	344	4.0	MOORE	1,379	16.2
ROCKINGHAM	2,006	23.5	ROCKINGHAM	368	4.0	PAMLICO	209	16.2
Alamance	752	23.4	WARREN	80	4.0	ROCKINGHAM	1,483	16.2
MOORE	1,850	23.4	WILKES	266	4.0	CHOWAN	237	16.1
YADKIN	2,126	23.2	CHOWAN	57	3.9	CrAVEN	1,362	16.0
CHOWAN	2,675	23.1	YADKIN	148	3.9	bertie	319	15.9
STOKES	1,527	22.7	CALDWELL	302	3.8	CLEVELAND	1,551	15.8
CALDWELL	330	22.5	DUPLIN	202	3.8	COLUMBUS	853	15.6
DUPLIN	2,206	22.5	STOKES	176	3.8	beaufort	723	15.5
SAMPSON	853	22.4	allegHany	41	3.7	MONTGOMERY	428	15.5
allegHany	1,037	22.3	bladen	119	3.7	YADKIN	592	15.5
bladen	836	22.3	SAMPSON	245	3.7	WILKES	1,039	15.4
WILSON	613	22.2	beaufort	168	3.6	MCDOWELL	680	15.3
WASHINGTON	1,253	21.8	CLEVELAND	350	3.6	PERSON	574	15.3
HAYWOOD	3,151	21.6	GASTON	748	3.6	VANCE	667	15.3
GASTON	1,125	21.1	HAYWOOD	205	3.6	DUPLIN	795	14.9
CLEVELAND	632	20.4	WASHINGTON	47	3.6	TRANSYLVANIA	463	14.9
beaufort	900	20.2	WILSON	283	3.6	MITCHELL	232	14.5
FORSYTH	1,798	20.1	CABARRUS	589	3.5	PERQUIMANS	185	14.3
FRANKLIN	1,148	20.1	FORSYTH	1,204	3.5	ashe	371	14.1
PERSON	260	20.1	FRANKLIN	201	3.5	GRAHAM	114	14.1
WAYNE	1,199	20.1	PERSON	131	3.5	HENDERSON	1,450	14.1
brunswick	2,043	19.9	WAYNE	405	3.5	Alamance	2,949	14.0
CABARRUS	473	19.9	brunswick	351	3.4	JOHNSTON	2,273	14.0
RUTHERFORD	422	19.9	RUTHERFORD	218	3.4	burke	1,243	13.9
SWAIN	523	19.9	SWAIN	46	3.3	GREENE	293	13.8
ROWAN	2,037	19.6	burke	282	3.2	brunswick	1,398	13.6
YANCEY	314	19.6	GREENE	68	3.2	HAYWOOD	774	13.6
MONTGOMERY	2,068	18.9	HARNETT	354	3.2	alexander	494	13.4
PENDER	3,069	18.9	IREDELL	492	3.2	HARNETT	1,454	13.3
PITT	882	18.9	MONTGOMERY	89	3.2	LINCOLN	968	13.0
HARNETT	695	18.8	PENDER	166	3.2	STANLY	771	12.9
IREDELL	3,197	18.8	PITT	501	3.2	GRANVILLE	706	12.6
burke	151	18.7	ROWAN	437	3.2	HERTFORD	299	12.6
GREENE	2,890	18.7	YANCEY	60	3.2	IREDELL	1,936	12.6
RANDOLPH	1,134	18.6	ashe	82	3.1	RUTHERFORD	798	12.6
MITCHELL	1,021	18.2	GUILFORD	1,472	3.1	STOKES	580	12.4
LEE	337	18.1	HENDERSON	325	3.1	YANCEY	229	12.3
GUILFORD	3,666	17.9	LEE	179	3.1	MACON	414	12.1
HENDERSON	1,336	17.9	MITCHELL	50	3.1	PENDER	618	11.9
ashe	923	17.8	RANDOLPH	442	3.1	NORTH CAROLINA	108,494	11.8
NORTH CAROLINA	6,093	17.6	DAVIE	123	3.0	CABARRUS	1,994	11.7
TYRRELL	75	17.5	GRANVILLE	171	3.0	TYRRELL	50	11.7
DAVIE	2,411	17.4	NORTH CAROLINA	27,963	3.0	DAVIE	477	11.6
GRANVILLE	180,795	17.4	TYRRELL	13	3.0	ROWAN	1,602	11.6
TRANSYLVANIA	994	17.2	TRANSYLVANIA	89	2.9	GASTON	2,329	11.4
PERQUIMANS	335	16.8	alexander	102	2.8	NEW HANOVER	2,186	11.4
NEW HANOVER	686	16.7	DAVIDSON	441	2.8	DAVIDSON	1,801	11.3
alexander	569	16.6	NEW HANOVER	539	2.8	POLK	214	11.3
DAVIDSON	3,188	16.6	PERQUIMANS	36	2.8	CATAWBA	1,737	11.2
MACON	2,567	16.5	avery	49	2.7	CHATHAM	679	11.2
MCDOWELL	2,612	16.4	CATAWBA	421	2.7	FORSYTH	3,792	11.0
CATAWBA	2,523	16.3	CHATHAM	162	2.7	RANDOLPH	1,549	11.0
CHATHAM	7,621	16.3	LINCOLN	199	2.7	FRANKLIN	626	10.8
LINCOLN	2,305	16.3	MACON	93	2.7	MADISON	222	10.7
avery	968	15.9	MCDOWELL	119	2.7	PITT	1,657	10.7
UNION	637	15.4	CUMBERLAND	813	2.6	PASQUOTANK	439	10.6
CUMBERLAND	280	15.2	JACKSON	93	2.6	GUILFORD	4,866	10.4
JACKSON	4,828	15.2	JOHNSTON	419	2.6	avery	186	10.1
JOHNSTON	289	15.2	UNION	488	2.6	JACKSON	375	10.1
DURHAM	82	14.9	DURHAM	639	2.5	buncombe	2,281	10.0
ORANGE	310	14.9	ORANGE	327	2.5	CUMBERLAND	3,133	9.9
POLK	541	14.6	buncombe	539	2.4	WATAUGA	443	9.8
PASQUOTANK	3,283	14.4	PASQUOTANK	99	2.4	CHEROKEE	263	9.7
buncombe	3,683	14.1	POLK	46	2.4	DURHAM	2,485	9.5
MADISON	1,798	13.9	CHEROKEE	60	2.2	WARREN	190	9.5
CHEROKEE	365	13.5	MADISON	46	2.2	ORANGE	1,220	9.4
WAKE	605	13.3	GRAHAM	17	2.1	HyDE	50	9.1
GRAHAM	549	12.4	WAKE	1,846	2.1	HOKE	373	8.4
ONslow	2,267	11.9	MECKLENBURG	1,742	2.0	CLAY	84	8.0
MECKLENBURG	2,068	11.7	ONslow	352	2.0	ONslow	1,397	7.9
HOKE	9,803	11.3	CASWELL	41	1.8	CASWELL	180	7.7
GATES	259	11.1	GATES	21	1.8	WAKE	6,535	7.6
CASWELL	113	10.8	HOKE	78	1.8	UNION	1,326	7.3
WATAUGA	9,196	10.5	WATAUGA	73	1.7	CAMDEN	64	6.6
CLAY	93	9.6	CLAY	14	1.3	GATES	78	6.6
DARE	110	9.3	DARE	36	1.1	MECKLENBURG	5,688	6.5
CURRITUCK	239	7.0	CAMDEN	10	1.0	DARE	169	5.0
CAMDEN	135	5.7	CURRITUCK	24	1.0	CURRITUCK	96	4.0

Source: North Carolina State Center for Health Statistics

Attachment 1

County	Hospitalization Rates by Disease per 1000 population			Mortality Rates		
	Cardiovascular and Circulatory Diseases	Cerebrovascular Disease	Heart Disease	All Causes - 2008	All Causes - Age Adjusted 2004-2008	Heart Disease - 2004
LEE	18.1	3.1	16.3	224.3	219.7	220.8
CHATHAM	16.3	2.7	11.2	234.9	180.1	223
HARNETT	18.8	3.2	13.3	165.1	227.8	183.5
MOORE	23.4	4.0	16.2	233.3	156.4	256.7
NORTH CAROLINA	17.6	3.0	11.8	188.8	202.2	196.8

Source: North Carolina State Center for Health Statistics

HospitalName	2008					2009				
	IP	Market Share	Days	Market Share	LOS	IP	Market Share	Days	Market Share	LOS
Central Carolina Hospital	4,009	47%	16,781	43%	4.2	4,445	49%	17,872	42%	4.0
First Health Moore Rgnl	1,852	22%	7,522	19%	4.1	1,925	21%	7,943	19%	4.1
UNC Hospitals	1,535	18%	8,462	22%	5.5	1,557	17%	9,473	22%	6.1
Cape Fear Valley Hlth Sys	255	3%	1,170	3%	4.6	319	3%	1,626	4%	5.1
Duke University Med Ctr	227	3%	1,401	4%	6.2	287	3%	2,358	6%	8.2
Rex Healthcare	147	2%	761	2%	5.2	135	1%	512	1%	3.8
WakeMed	136	2%	821	2%	6.0	115	1%	887	2%	7.7
WakeMed Cary	105	1%	431	1%	4.1	71	1%	293	1%	4.1
Betsy Johnson Mem Hosp	34	0%	96	0%	2.8	42	0%	135	0%	3.2
Durham Regional Hospital	36	0%	208	1%	5.8	40	0%	156	0%	3.9
Duke Health Raleigh Hosp	34	0%	265	1%	7.8	40	0%	132	0%	3.3
Sandhills Regional M.C.	17	0%	79	0%	4.6	29	0%	134	0%	4.6
Moses H Cone Mem Hospital	27	0%	239	1%	8.9	22	0%	81	0%	3.7
The NC Baptist Hospitals	20	0%	298	1%	14.9	18	0%	184	0%	10.2
New Hanover Regional M.C.	16	0%	82	0%	5.1	13	0%	100	0%	7.7
Pitt County Memorial Hosp	17	0%	244	1%	14.4	10	0%	75	0%	7.5
Highsmith-Rainey Mem Hosp	2	0%	72	0%	36.0	8	0%	355	1%	44.4
Carolinas Medical Center	11	0%	56	0%	5.1	7	0%	58	0%	8.3
Southeastern Reg Med Ctr	4	0%	12	0%	3.0	7	0%	37	0%	5.3
Nash Health Care System		0%		0%		6	0%	52	0%	8.7
Scotland Memorial Hosp		0%		0%		6	0%	11	0%	1.8
High Point Regional Hosp	4	0%	21	0%	5.3	5	0%	17	0%	3.4
NC Specialty Hospital	7	0%	18	0%	2.6	4	0%	6	0%	1.5
Johnston Memorial Hosp	4	0%	26	0%	6.5	4	0%	24	0%	6.0
Forsyth Memorial Hospital	3	0%	16	0%	5.3	4	0%	11	0%	2.8
Mission Hospital	1	0%	4	0%	4.0	4	0%	13	0%	3.3
Frye Regional Med Center	1	0%	14	0%	14.0	4	0%	7	0%	1.8
Chatham Hospital	3	0%	6	0%	2.0	3	0%	7	0%	2.3
Sampson County Mem Hosp		0%		0%		3	0%	5	0%	1.7
Wayne Memorial Hospital	3	0%	7	0%	2.3	2	0%	18	0%	9.0
Catawba Valley Medical	3	0%	24	0%	8.0	2	0%	11	0%	5.5
Craven Regional Med Ctr	1	0%	1	0%	1.0	2	0%	5	0%	2.5
Brunswick Hospital		0%		0%		2	0%	6	0%	3.0
Iredell Memorial Hospital		0%		0%		2	0%	9	0%	4.5
Thomasville Medical Ctr	3	0%	6	0%	2.0	1	0%	9	0%	9.0
Onslow Memorial Hospital	3	0%	8	0%	2.7	1	0%	4	0%	4.0
Alamance Regional Med Ctr	2	0%	15	0%	7.5	1	0%	9	0%	9.0
CMC-Northeast	1	0%	1	0%	1.0	1	0%	2	0%	2.0
Watauga Medical Center	1	0%	2	0%	2.0	1	0%	1	0%	1.0
Carteret County Gen Hosp	1	0%	1	0%	1.0	1	0%	1	0%	1.0
Rowan Regional Med Center	1	0%	1	0%	1.0	1	0%	2	0%	2.0
Northern Hosp-Surry Cnty		0%		0%		1	0%	2	0%	2.0
Granville Medical Center		0%		0%		1	0%	2	0%	2.0
Presbyterian Hospital	5	0%	35	0%	7.0		0%		0%	
Nash Hospitals	4	0%	25	0%	6.3		0%		0%	
Chowan Hospital	2	0%	6	0%	3.0		0%		0%	
Maria Parham Hospital	2	0%	5	0%	2.5		0%		0%	
Annie Penn Hospital	1	0%	3	0%	3.0		0%		0%	
Davis Medical Center	1	0%	3	0%	3.0		0%		0%	
Mercy Hospital	1	0%	1	0%	1.0		0%		0%	
Beaufort County Hospital	1	0%	4	0%	4.0		0%		0%	
Lexington Memorial Hosp	1	0%	2	0%	2.0		0%		0%	
Franklin Regional Med Ctr	1	0%	4	0%	4.0		0%		0%	
	8,545		39,259			9,152		42,645		

Source: Thomson Reuters NC Hospital Database

CCH Output Dx CC Mkt Share				
Lee	3721	2	0.3%	
Lee	3722	84	13.5%	
Lee	3723	7	1.1%	14.9%
Harnett	3722	26	4.4%	4.4%
Chatham	3722	3	1.3%	1.3%
		122		

Source: Thomson Reuters NC Hospital Outpatient Database

2009 Output Dx CC Patient Origin	
Lee	76.2%
Harnett	21.3%
Chatham	2.5%

Source: Thomson Reuters NC Hospital Outpatient Database

Projected CCH Dx CC Volume											
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Lee	58,574	59,375	60,215	61,059	61,904	62,743	63,587	64,429	65,273	66,114	66,955
Harnett	112,864	116,144	119,499	122,814	126,150	129,476	132,807	136,132	139,462	142,792	146,121
Chatham	62,492	63,589	64,763	65,935	67,106	68,277	69,446	70,614	71,780	72,947	74,110
Total	233,930	239,108	244,477	249,808	255,160	260,496	265,840	271,175	276,515	281,853	287,186
Lee:Harnett:Chatham Outpt Dx CC Volume County Projected Dx CC	1447	1479	1512	1545	1578	1611	1644	1677	1710	1743	1776
Total Service Area Use Rate	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2
CCH Mkt Share	8.4%	17.1%	17.1%	17.1%	17.1%	17.1%	17.1%	17.1%	17.1%	17.1%	17.1%
CCH Lee:Harnett:Chatham Outpt Dx CC	122	253	259	264	270	276	281	287	293	298	304
CCH Inpt Dx CC - 25%	41	84	86	88	90	92	94	96	98	99	101
Total Projected CCH Dx CC Volume	163	337	345	352	360	368	375	383	390	398	405

Source: Thomson Reuters NC Outpatient Database; NC OSBM, CCH Internal Data

Projected CCH Peripheral Angiography Volume											
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Lee	58,574	59,375	60,215	61,059	61,904	62,743	63,587	64,429	65,273	66,114	66,955
Harnett	112,864	116,144	119,499	122,814	126,150	129,476	132,807	136,132	139,462	142,792	146,121
Chatham	62,492	63,589	64,763	65,935	67,106	68,277	69,446	70,614	71,780	72,947	74,110
Total	233,930	239,108	244,477	249,808	255,160	260,496	265,840	271,175	276,515	281,853	287,186
Lee:Harnett:Chatham Outpt Dx CC Volume County Projected Dx CC	3298	3563	3814	3897	3980	4064	4147	4230	4314	4397	4480
Peripheral Vascular Incidence / 1000 Population	14.1	14.9	15.6	15.6	15.6	15.6	15.6	15.6	15.6	15.6	15.6
CCH Mkt Share	0.0%	0.0%	0.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%
CCH Lee:Harnett:Chatham	0	0	0	585	597	610	622	635	647	660	672

Source: Scotland Memorial 2007 Petition for Shared Fixed Cardiac Cath Equipment; NC OSBM, CCH Internal Data